

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUYA ONO, AKIRA YASUDA
and KATSUJI KITAGAWA

Appeal No. 95-0442
Application 08/026,183¹

ON BRIEF

Before WEIFFENBACH, PAK and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1 and 3-5, which are all of the claims remaining in the

¹ Application for patent filed March 1, 1993. According to appellants, the application is a continuation of Application 07/655,023, filed February 14, 1991, now abandoned.

application. Claim 1 is illustrative and reads as follows:

1. A powder coating composition having good penetrability and suitability for impregnation of rotor coil windings, said composition consisting essentially of:

(a) 100 parts by weight of a mixed epoxy resin having an epoxy equivalent of 800-2000 and including (a-1) diglycidyl ether of bisphenol A having an epoxy equivalent of 180-2500 and (a-2) a rubber-modified epoxy resin having an epoxy equivalent of 180-2500 and obtained by reaction of a diglycidyl ether of bisphenol A with a carboxyl terminated acrylonitrile-butadiene copolymer, wherein said copolymer is 1-4 wt.% of said mixed epoxy resin;

(b) a mixed curing agent consisting of (b-1) 0.05-5 parts by weight of an imidazole compound, (b-2) 0.5-10 parts by weight of dicyanodiamide and (b-3) 1-10 parts by weight of a dihydrazide of a dibasic carboxylic acid; and

(c) 50-100 parts by weight of silica.

THE REFERENCES

Kaufman	4,420,605	Dec. 13, 1983
Yamamoto et al. (Yamamoto)	4,695,598	Sept. 22, 1987

THE REJECTION

Claims 1 and 3-5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yamamoto in view of Kaufman.

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with appellants that the aforementioned rejection is not well founded. Accordingly, this rejection will be reversed.

Appellants' invention is a powder coating composition which

is suitable for impregnating rotor coil windings. The composition consists essentially of 1) 100 parts by weight of a mixed epoxy resin which has an epoxy equivalent of 800-2000 and includes a) a diglycidyl ether of bisphenol A having an epoxy equivalent of 180-2500, and b) a rubber-modified epoxy resin which has an epoxy equivalent of 180-2500 and is obtained by reacting a diglycidyl ether of bisphenol A with a carboxyl-terminated acrylonitrile-butadiene copolymer, this copolymer being 1-4 wt% of the mixed epoxy resin, 2) a mixed curing agent consisting of specified amounts of an imidazole compound, dicyanodiamide and a dihydrazide of a dibasic carboxylic acid, and 3) 50-100 parts by weight of silica.

Yamamoto discloses a coating composition which is especially suitable for coating fuel tanks (col. 1, lines 5-9), but can be used to form coatings for various articles in various fields (col. 5, lines 20-22). The composition comprises a rubber-modified epoxy resin, a phenoxy resin, a metal powder, a curing agent and an organic solvent (col. 1, lines 49-55). The rubber-modified epoxy resin is made by reacting an epoxy resin with a carboxyl group-containing butadiene-acrylonitrile rubber, wherein the epoxy resin can be a bisphenol A type epoxy resin (col. 2, lines 29-32) and generally has an epoxy equivalent of about 100

to about 3500 (col. 2, lines 36-38), and the carboxyl group-containing butadiene-acrylonitrile rubber preferably is carboxyl terminated (col. 2, lines 50-52). The rubber-modified epoxy resin generally has an epoxy equivalent of 200 to 5000, preferably 250-4000 (col. 3, lines 38-41), and the rubber component is about 5-35 wt% of this resin (col. 3, lines 9-10). The disclosed curing agents include dicyandiamide type curing agents, hydrazide type curing agents, and imidazole type curing agents (col. 4, lines 25-31). The composition can include, in combination with the rubber-modified epoxy resin, an epoxy resin which can be any epoxy resin which is useful for making the rubber-modified epoxy resin (col. 3, lines 3-10). The composition also can include various additives, including a filler such as silica, depending upon the intended use and desired properties of the composition (col. 5, lines 8-19).

Appellants argue that there is no teaching in Yamamoto which would have motivated one of ordinary skill in the art to delete the organic solvent, metal powder and phenoxy resin from Yamamoto's composition (brief, pages 6 and 8-10). We do not consider this argument to be well taken as to the organic solvent and metal powder components.

Yamamoto teaches that it was known in the art to use epoxy

resins in the form of liquids, pastes, sheets and powders (col. 1, lines 12-17), and that use of an organic solvent "can improve the surface flatness, film thickness uniformity and workability during coating" (col. 2, lines 1-3). In our view, these teachings would have fairly suggested to one of ordinary skill in the art that Yamamoto's composition would be effective in powder form and would have fairly suggested, to such a person, use of the composition in powder form when the potential improvement in surface flatness, film thickness uniformity and workability disclosed by Yamamoto resulting from the use of a solvent is not desired. See *In re Wilson*, 377 F.2d 1014, 1017, 153 USPQ 740, 742 (CCPA 1967); *In re Larson*, 340 F.2d 965, 969, 144 USPQ 347, 350 (CCPA 1965); *In re Brown*, 228 F.2d 247, 249, 108 USPQ 232, 234 (CCPA 1955). We are not persuaded by appellants' argument (brief, page 6) that "[t]here is no reason, apparent from this record, to believe that all liquid epoxy compositions can be suitably converted to powder compositions merely by deletion of a solvent". In our view, grinding up a solvent-free epoxy composition to form a powder would have been *prima facie* obvious to one of ordinary skill in the art given Yamamoto's teachings that epoxy compositions are useful in powder form (col. 1, lines 15-16).

As for the metal powder, Yamamoto teaches that "in order that steel plate coated with the epoxy resin composition can be welded after heat curing the coating, a metal powder is added to the composition" (col. 4, lines 44-47). Yamamoto provides Comparative Example 3 (Table 1) which differs from Example 1, which illustrates Yamamoto's invention, only in that the composition in Comparative Example 3 contains no metal powder and contains less solvent than the composition in Example 1. Yamamoto's Table 1 shows that the composition of Comparative Example 3 produces a film which is comparable to that in Example 1 in adhesiveness and all other listed properties except weldability. In view of this disclosure and the teaching by Yamamoto that the composition can be used for coating various articles in various fields (col. 5, lines 20-22), one of ordinary skill in the art would have had been motivated to use the composition, without the metal powder being present, to coat articles which are not to be welded, and would have had a reasonable expectation that an adherent coating would be obtained. See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988); *In re Longi*, 759 F.2d 887, 892-93, 225 USPQ 645, 648 (Fed. Cir. 1985).

We do not find in the evidence of record, however, an indication that it would have been obvious to one of ordinary skill in the art to eliminate the phenoxy resin from the Yamamoto composition. Yamamoto teaches that "[w]hen the phenoxy resin content is too small, sufficient flexibility and impact resistance cannot be obtained" (col. 4, lines 6-8). Thus, Yamamoto indicates that eliminating the phenoxy resin from the composition would render the composition unsuitable for its intended purpose of providing a flexible coating which is highly adhesive and is resistant to impact, heat and chemicals (col. 1, lines 59-65). Yamamoto therefore indicates that eliminating the phenoxy resin would not have been obvious to one of ordinary skill in the art. See *Ex parte Rosenfeld*, 130 USPQ 113, 115 (Bd. Pat. App. 1961).

Appellants argue that the expression "consisting essentially of" in the preamble of appellants' claim 1 excludes Yamamoto's phenoxy resin because Yamamoto teaches that this resin materially affects the basic and novel characteristics of Yamamoto's composition (brief, pages 3-4). This argument is not well taken because the relevant question is whether the phenoxy resin affects the basic and novel characteristics of appellants' composition, not Yamamoto's composition. See *In re Herz*, 537

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F.2d 549, 551-2, 190 USPQ 461, 463 (CCPA 1976); *In re De Lajarte*, 337 F.2d 870, 873-4, 143 USPQ 256, 258 (CCPA 1964); *In re Janakirama-Rao*, 317 F.2d 951, 954, 137 USPQ 893, 896 (CCPA 1963).

Appellants teach that for a powder coating composition to be capable of performing the intended use recited in the preamble of appellants' claim 1, i.e., impregnation of rotor coil windings, it must have strong adhesion and good penetrability (specification, page 1, line 16 - page 2, line 3). The requirement of good penetrability is specifically recited in the preamble of appellants' claim 1.

A comparison of Yamamoto's Table 1 and the table in appellants' specification (page 9) indicates that the Yamamoto composition provides adhesion which is substantially stronger than that of appellants' composition. Yamamoto's composition therefore provides adhesion which is strong enough for impregnating rotor coil windings.

Yamamoto, however, is silent as to the penetrability of the disclosed epoxy compositions. Appellants teach that use of a rubber-modified epoxy resin having an epoxy equivalent of 800-2000 provides for adequate penetrability without causing excess flowability of the composition (specification, page 3, lines 13-23). The epoxy equivalent of Yamamoto's rubber-modified epoxy

resin generally is 500-5000 (col. 3, lines 38-41), which overlaps with appellants' range of epoxy equivalents. However, the range of phenolic resin contents preferred and claimed by Yamamoto is 40-90 wt% (col. 4, lines 5-6; claim 1), which is a substantial amount. We cannot determine from the record what effect the presence of such an amount of phenolic resin would have on the penetrability of appellants' claimed composition. Thus, we cannot determine whether Yamamoto's phenolic resin is excluded by the term "consisting essentially of" in the preamble of appellants' claim 1.

The examiner is of the view that appellants have the burden of showing that Yamamoto's phenolic resin would materially affect the basic and novel characteristics of their composition (answer, page 4). This view is incorrect because the examiner has the initial burden of establishing a *prima facie* case of obviousness. See *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). When a *prima facie* case of obviousness has been established, appellants then have the burden of rebutting it by presenting objective evidence of non-obviousness. See *Piasecki* at 1472, 223 USPQ at 788; *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 882 (CCPA 1981).

If the examiner considers penetrability which is sufficient for impregnating rotor coil windings to be an inherent characteristic of Yamamoto's phenoxy resin-containing composition, then "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990). Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986).

The examiner has not provided an explanation supported by evidence or technical reasoning as to why appellants' claims encompass a composition which includes Yamamoto's phenolic resin.² Accordingly, we conclude that the examiner has not carried his burden of establishing a *prima facie* case of obviousness of appellants' claimed invention.

²The Kaufman reference was relied upon by the examiner solely for the purpose of providing motivation to use a combination of curing agents (answer, page 4).

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DECISION

The rejection of claims 1 and 3-5 under 35 U.S.C. § 103 as being unpatentable over Yamamoto in view of Kaufman is reversed.

REVERSED

CAMERON WEIFFENBACH)	
Administrative Patent Judge)	
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CHUNG K. PAK)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
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